

# Ruthenium Catalysts for Greener Processes: Alkynes, Alkenes and C-H Bond Functionalizations

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# Ruthenium Catalysts for Greener Processes: Alkynes, Alkenes and C-H Bond Functionalizations

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## Content:

Selective reactions of alkynes and alkenes via carbene intermediates and carbene reagents.  
Synthesis of functional dienes and bicyclic products.  
Alkene metathesis for biomass transformations.  
C-H bond activation and C-C bond formations.



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## Research topics

C-H bond activation / functionalisation  
Alkene metathesis catalysts and applications from plant oils  
Catalysis for selective processes and fine chemistry:  
    Catalytic transformations of alkynes and development of Ru catalysts  
    Catalytic addition of carbenes to alkynes and enynes  
    Metal-vinylidenes in catalysis  
Novel carbon-rich organometallics and catalyst models

## Scientific activity

>400 papers in international journals, including book chapters and reviews  
5 patents  
2 books:  
    Ruthenium catalysts in fine chemistry (2004, Springer)  
    Metal vinylidenes and allenylidenes in catalysis (2008, Wiley)

## Awards and distinctions

1990 A. von Humboldt prize for Research  
1994 Académie des Sciences award  
1996 Doctor Honoris Causa, Waterloo, Canada  
2000 Prix Le Bel (French Chemical Society)  
2000 Member of the « Institut universitaire de France »  
2001 Grignard-Wittig Prize (Germany)  
2006 Grand prix IFP académie des sciences  
2006 Sacconi medal (Italy)

## National responsibilities

1995 Elected Member of the National Committee of the CNRS (95-96), nominated 2000-04  
1996 Deputy director for CNRS-Department of Chemical Sciences in Paris (nov 96-Dec 99)

## University responsibilities

Director of a CNRS research unit "organometallics and catalysis 86-99  
Initiator and first Director de l'Institut de Chimie de Rennes 1.1.2000/31-3-02  
Vice president for research of the University of Rennes Jan 2001-Dec 2004

Initiator of the European ERASMUS student exchange program in Rennes 88-96.  
Initiator of the international master in English "Catalysis and Green chemistry" Rennes 2004

#### **European research Networks**

French representative for European Program COST chemistry 1998-2001  
French member of the European Network of Excellence IDECAT starting Feb. 2005

#### **Invited professor positions/ International seminars/ Consulting for research**

Lanzhou univ (4-09), SIOC Shanghai (9-09), Beyrouth Lebanon (11-09), Heidelberg (11-09)  
Advisory board Max-Planck institute Muelheim, Germany (2005-11)  
Co-organisator of International workshops (China-France, 05, 06, 08), Orchid Taipei 2010  
International Advisory boards ICOMC, OMCOS  
Co-organisator of ICOMC 2008 Rennes 1200 attendants

#### **Journal Advisory, Editorial boards**

*Previously Organometallics, Chemical communications, Advances in Synthesis and catalysis* (00-10)  
1997 Editor board of "Topics in Organometallic Chemistry" series, Springer  
2010 Green Chemistry